

**THE PORT AUTHORITY  
OF NY & NJ**

**CONFORMED DRAWING**  
08/2/98  
SIGNED AND SEALED  
COPY IS KEPT ON FILE

ORIGINAL SIGNED & SEALED BY  
NY P.E. (OR R.A.)

**Joseph R. Loring  
& Associates, Inc.**  
consulting engineers  
One Pennsylvania Plaza  
New York, New York 10001-2043  
Tel: (212) 563-7400, Fax: (212) 563-7382

IN CHARGE OF  
**DAVID  
ELLIOT  
LESCOWITZ**  
P.E.  
ARCHITECT & ENGINEER  
14 FLEET STREET, NEW YORK, NY 10003  
TEL: (212) 563-7400 FAX: (212) 563-7382

**LESLIE E. ROBERTSON  
ASSOCIATES, R.L.L.P.**  
CONSULTING ELECTRICAL ENGINEERS  
20 EAST 47TH STREET  
NEW YORK, NY 10017  
TEL: (212) 563-7400 FAX: (212) 563-7382

Engineering Department  
Design Divisions

**The  
World  
Trade  
Center**

**STANDBY POWER  
5 WORLD TRADE CENTER**

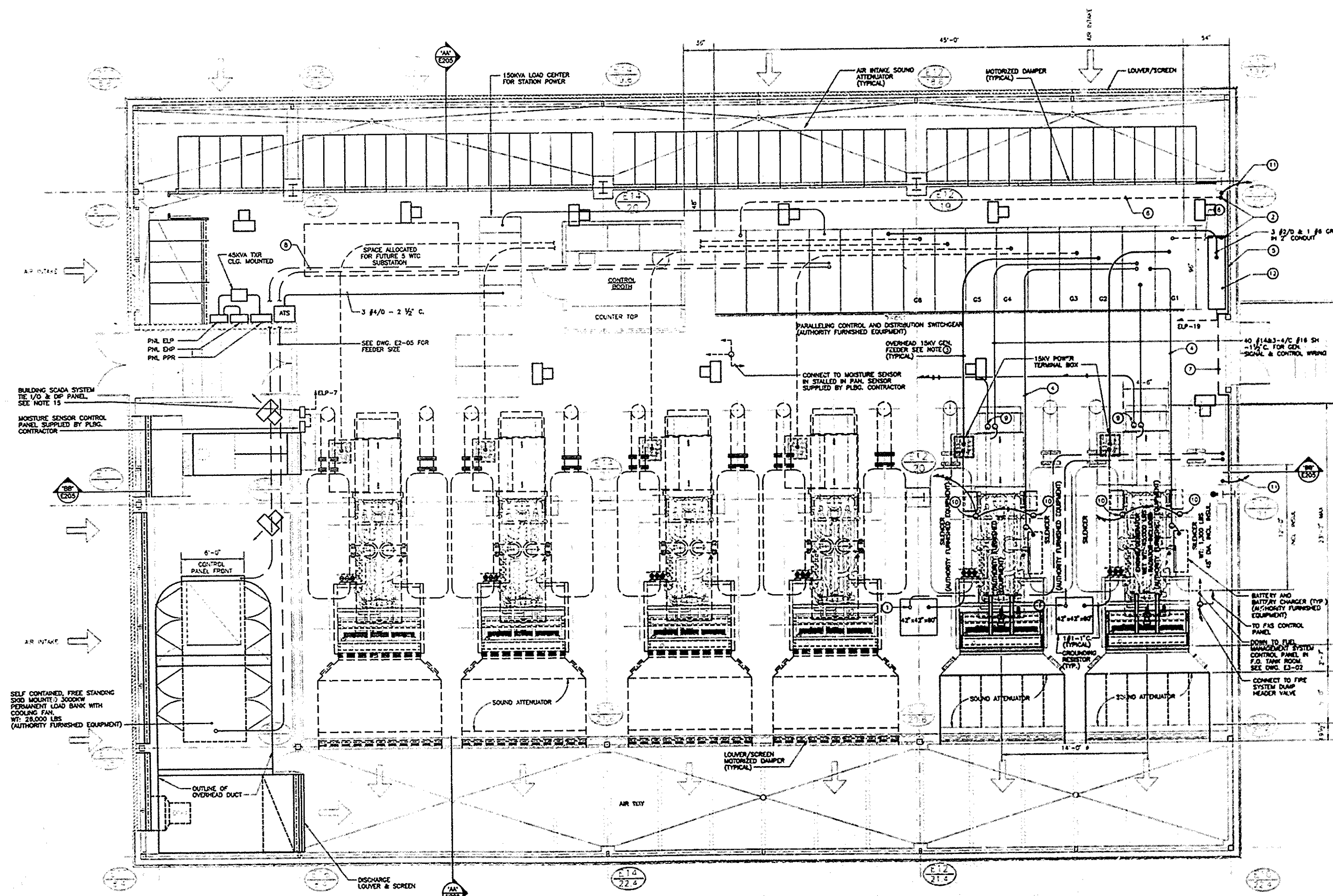
**ELECTRICAL  
GENERATOR  
BULKHEAD PLAN  
AND DETAILS**

This drawing subject to conditions in contract  
and specifications. Changes, omissions and methods  
herein are reserved to Port Authority and  
may not be used without its written consent.

DESIGNED BY	DATE	SCALE
11/17/97	AS NOTED	
CONTRACT NUMBER	DRAWING NUMBER	
WTC-945.071	E2-04	

**NOTES:**

- DOWN TO SPACE UNDER BULKHEAD FLOOR, CONNECT 1 #1/0 GROUND CONDUCTOR TO GROUND BAR AT EAST WALL.
- #1/0 GROUND CONDUCTOR EXOTHERMICALLY WELDED TO GROUND BUS. RUN DOWN TO SPACED UNDER BULKHEAD FLOOR AND UP TO SWITCHGEAR GROUND BUS.
- FOR GENERATOR FEEDER AND POWER DISTRIBUTION SEE ONLINE DIAGRAM AND Riser DIAGRAM DWG. E1-01 AND E1-02.
- 3 #8 & 3-2/C #16SH. IN 1" CONDUIT FOR BATTERY CHARGER, SIGNAL AND CONTROLS.
- 1/2" x 4" COPPER GROUND BAR MOUNT 12" AFF AND 1" FROM WALL WITH INSULATORS.
- #1/0 GROUND CONDUCTOR.
- #1/0 GROUND CONDUCTOR UNDER BULKHEAD FLOOR, THE BETWEEN BARS AS SHOWN.
- 1" CONDUIT FOR LOAD BANK REMOTE SIGNAL AND CONTROLS WIRING.
- EXTEND AND CONNECT TO 750 WATT GENERATOR HEATER.
- EXTEND AND CONNECT TO 6000 WATT JACKET WATER HEATER.
- #1/0 GROUND CONDUCTOR DOWN TO BUILDING SUBSTATION "SS-PE" MAIN GROUND BUS AT EL. 207'-0" 55 ROOM. THE COORDINATES OF 55-PE ROOM ARE COLUMN NOS. E10-15 THRU E10-17 AND E12-14 THRU E12-16. LENGTH OF RUN OF GROUNDING CONDUCTORS BETWEEN THE PARALLELING SWITCHGEAR AND GROUND BUS AT SUBSTATION SS-PE IS APPROXIMATELY 250 FT.
- 125 DC SYSTEM BATTERY AND BATTERY CHARGER. WALL MTD. BATTERY RACK FOR MAXIMUM 80 LEAD ACID BATTERIES 7'-0" W x 7'-0" H x 20" D MOUNTED 12" AFF. SUPPORT RACKS WITH SECTIONS OF "HONDER" CHANNELS ATTACHED TO WALL CURB AND WALL STEEL FRAME.
- ALL CONDUIT SHALL BE RIGID STEEL.
- SEE DRAWING E4-01 FOR ROUTING FROM SWITCHGEAR TO VERTICAL SHAFT ON 9TH FLOOR.
- PROVIDE BUILDING SCADA SYSTEM INPUT AND OUTPUT DEVICES AND MICROPROCESSOR BASED DIGITAL INSTRUMENTAL PACKAGE (DIP) DEVICES TO INCORPORATE ALARMS AND MONITORING POINTS. THE DIP SHALL BE SIEMENS MODEL 4720 WITH 1250C INPUT POWER SUPPLY AND 1/0 UNIT SIEMENS MODEL 87-170 WITH RS-485 COMMUNICATIONS PORT. COMMUNICATION RS-485 CABLE TO CONSIST OF #12AWG SHIELD TWISTED PAIR IN 1/2" CONDUIT SHALL BE 1) THE EXISTING SCADA HARDWARE AS DIRECTED BY THE EXISTING SCADA MANUFACTURER.



**5 WTC ROOF PART PLAN - BULKHEAD ROOM  
STAND-BY GENERATOR PLANT LAYOUT**

